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GEOGRAPHICAL INFLUENCES IN THE DEVELOPMENT OF WISCONSIN *

By MARY DOPP

Teacher of Physiography in the Francis W. Parker High School of Chicago

CHAPTER V. THE LUMBER INDUSTRY

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If a line were drawn from Manitowoc to Portage and from there to the falls of the St. Croix, nearly all the forest region proper of the state would be north and the prairies and oak openings south of it (Fig. 13, in Chap. III, p. 596). The forested area has been divided according to the vegetation it supports into four more or less distinct regions. (1) A hardwood region which occupies a 35- to 50-mile wide belt around the southern edge. This belt contained originally some pine trees, usually of large size and forming

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* Continued from pp. 401–412, 490–499, 585–609, and 653–663.

about 5 per cent. of the stand of timber. (2) Extending north somewhat indefinitely from the hardwood belt is the mixed hardwood and pine growth in which 50 per cent. of the stand was hardwood, chiefly birch, and the rest was pine and other conifers. (3) There were many open spaces in this area of mixed hardwood and conifers, which were covered by grass or cranberry marshes. Together with the lakes and streams these spaces formed about 5 per cent. of the so-called forested area. (4) Areas of heavy pine timber occurred along the Wisconsin River, about the headwaters of the Flambeau and Wisconsin, in Marinette and Oconto Counties, and in other scattered localities. In the whole forested area the pine constituted on the average about 30 per cent. of the tree growth.[1] In general the mixed forest of white pine and hardwoods occurred on all loam and clay soils. The sandy loam and red clays of the Lake Superior region supported chiefly pine, while the sandy and loamy sand districts were covered with pine only, usually a mixture of white and Norway.[2] The poorest soil constituted the "barrens" and supported a tree growth of scrub pines and hardwoods, usually oaks. Good timber grows on good soils and this grades into inferior timber on poorer soils. (5) Outside of the forest area proper, in the southern part of the state, are bodies of timber which are mostly hardwood, but they have been of no great commercial importance. They have been used almost exclusively by the population of the thickly settled area within which they occur.[3]

Of the 38 species of forest trees in Wisconsin,[4] the white pine has been the most valuable commercially. The quality of Wisconsin pine varied greatly, depending upon the kind and condition of the soil. That growing in the hardwood belt was of good quality, especially along the Wolf, Oconto, and Peshtigo Rivers. The Black River district and also the Eau de Galle River basin in the counties of Pierce, Dunn, and St. Croix, contained a large amount of high grade pine. There were about one to ten trees an acre scattered among the hardwoods, each tree scaling from 1,000 to 3,500 feet of lumber.[5] Much good pine occurred in the area of mixed hardwoods and conifers, particularly along the Wolf River. As much as 10 million to 12 million feet of pine have been cut from a

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[1] Roth, F.: Forestry Conditions of Northern Wisconsin, *Wis. Geol. Surv. Bull. 1*, p. 14.

[2] *Ibid.*, p 10.

[3] 10th Census of U. S., Vol. IX, p. 557.

[4] Defebaugh, J. E.: History of Lumbering in America, p. 304.

[5] 10th Census of U. S., Vol. IX, p. 555.

640 acre section along the lower Wolf.[6] Along the Eau Claire River the timber was of small diameter and sound, growing very thick and high. It is reported that as much as 1.2 million to 1.5 million feet have been cut upon a 40 acre lot in this region. One tree on the Jump River is said to have scaled 7,000 feet of lumber.[7] Along the St. Croix where the soil is sandy, the timber is scrub pine and dwarf black and white oak. This constitutes part of the area known as the "barrens" (Fig. 13, in Chap. III, p. 596).

The effect of soil is just as apparent in the growth of the hardwoods as in that of the pines. The hardwood area of Dunn, Pierce, Clark, Wood, and Marathon Counties extended east to Green Bay and in a narrowing belt along Lake Michigan. This area contained some high grade white oak, suitable for manufacturing purposes.[7]

Lumbering in Wisconsin began in 1809 with the building of the first sawmill on the Devil River,[8] just east of Depere. The next mill of which there is record was erected at Kaukauna in 1816, to supply lumber for the fort at Green Bay. Government permits were given to erect mills on the Menomonie at the present site of Menomonie in 1829;[9] at the present site of Plover on the Wisconsin in 1831;[10] on Doty's Island in Lake Winnebago in 1831;[11] at Little Chute on the west side of the Fox River in 1832;[12] and on the west side of Green Bay, tweney miles from Fort Howard, in 1833.[13] In 1849 a traveler reported 47 mills along the Wisconsin River and from 1,500 to 2,000 men engaged in rafting logs and lumber.[14]

It is possible that lumber was shipped from the west side of Lake Michigan to Chicago as early as 1835. At any rate the lumber trade from Wisconsin began to assume considerable proportions by 1839, and by 1845 Wisconsin lumber was competing with Michigan lumber in Chicago.[15] The lumber industry developed not only along Lake Michigan but also in the interior along the Wolf, Wisconsin, Black, Chippewa, and other rivers. The strong demand for lumber on the part of the growing settlements in Wisconsin and the states farther south caused the occupation of most of the available mill sites. Around these mills settlements sprang up, many of which grew to be large and prosperous cities, as noted in the preceding chapter.

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[6] 10th Census of U. S., Vol. IX, p. 556.

[7] *Ibid.*, p. 557.

[8] Wis. Pion. Repts., Vol. 3, p. 253.

[9] *Wis. Hist. Coll* , Vol. II, p. 133.

[10] *Ibid.*, Vol. XV, p. 9.

[11] *Ibid.*, Vol. XV, p. 14.

[12] *Ibid.*, Vol. XV, p. 11.

[13] *Ibid.*, Vol. XV, p. 16.

[14] Chapin, John E.: Sketch of Cutting Marsh, *Wis. Hist. Coll.*, Vol. XV, p. 336.

[15] Hotchkiss, G. W.: Industrial Chicago, Vol. V, pp. 21, 31, 39.

The method of lumbering varied on the different rivers. Since the nature of its channel rendered the driving of logs very difficult, practically all the logs along the Wisconsin were sawed at the river bank. Above Grand Rapids, which is located at the edge of the crystalline area, the Wisconsin is a succession of rapids and eddies. Through these the lumber had to pass. It was built into cribs 16 x 16 or 16 x 12 feet, containing 12 to 20 tiers of inch boards. These cribs were bound together by pins, 2 inches in thickness and 4 feet long, made of saplings with a part of the root left on to form the head of the pin. The pins were put through the planks forming the bottom of the crib, the lumber was piled on, and the pins fastened into the binding planks at the top.[16] About six of these cribs were fastened end to end to form a "rapid piece." A solid piece of square timber was fastened across each end and on this were hung the 36-foot oars. Two to eight men were necessary to handle a "rapid piece." A fleet consisted of 15 or more rapid pieces, managed by one pilot and his assistants. When a rapid or fall had to be crossed the fleet was tied in smooth water above and the crew took the "rapid pieces" over one by one. Below Grand Rapids two "rapid pieces" coupled side by side formed a "Wisconsin raft" with which the river men ran The Dells. Below The Dells several rafts were united, but not until the Mississippi was reached was the whole fleet united into one great raft 500 to 1,000 feet long, and 200 to 300 feet wide. Upon this cabins and cook houses were erected and the hands were able to get regular meals and sleep.[17] The first large raft reported to have been taken down the Wisconsin went from Portage to St. Louis in 1839.[18]

On the Black River most of the logs were run in rafts to La Crosse at the mouth, and such as were not sawed there were floated down the Mississippi to points in Iowa, Illinois, and Missouri.[18] The fact that there was little sawing done on Black River made Black River Falls for many years the only place on the river of much importance. Even the lumbermen who lived at the Falls preferred to run their logs to La Crosse to be sawed.

Logging began on the Chippewa as early as 1822.[19] There was little done until after 1836, however, and even then sawing was carried on in a comparatively small way until 1850. After that the cut increased steadily until 1883 (Fig. 22). In 1880, 5,000 men were employed in the pineries along the Chippewa, cutting about 600,000,000 feet of logs.[20]

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[16] Ellis, A. G.: Upper Wisconsin Country, *Wis. Hist. Coll.*, Vol. III, p. 441.

[17] *Ibid.*, pp. 442–443.

[18] Holley, J. M.: Waterways and Lumber Interests of Western Wisconsin, *Wis. St. Hist. Soc. Proc.*, 1906, p. 210.

[19] Thwaites, R. G.: Wisconsin, p. 282.

In 1836 lumbering began along the St. Croix. A company was formed in 1838 which shipped nothing but sawed lumber, lath, and shingles until 1843. In that year a flood swept away their logs, which were collected into rafts again at Stillwater and run to St. Louis from that point. This proved so profitable that running uncut logs to market became an important part of the business.[21] In the beginning, the propelling power of the log rafts on the Mississippi was the current of the river. In 1864 the experiment of towing a raft with a steamer proved successful and created an epoch in river rafting. After a time a small steamer was placed at

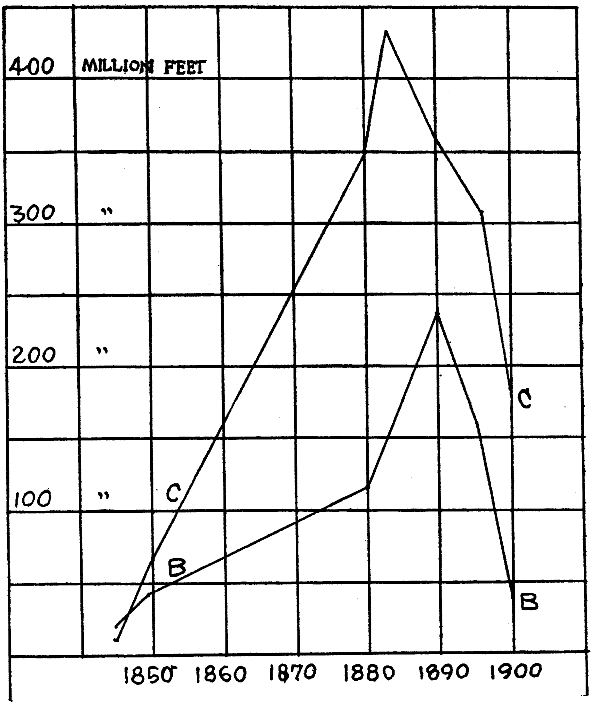

FIG. 22—Lumber Cut in the Valleys of the Black (B) and Chippewa (C) Rivers.

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[20] 10th Census of U. S., Vol. IX, p. 557.

[21] Holly, J. M.: Waterways and Lumber Interests of Western Wisconsin, *Wis. State Hist. Soc. Proc.*, 1906, p. 212.

the bow of the raft at right angles to the current and helped to guide the logs. At one time more than 100 steamers were employed in this work.[22]

The lumber industry acquired great prominence in the state about 1870. After this the output increased rapidly to 1892, which was the year of greatest production, with 4.1 billion feet (Fig. 23). In 1880 Wisconsin occupied third place among the lumbering states, being outranked only by Pennsylvania and Michigan. In 1890 it ranked second and in 1900 first, although the actual output of lumber was not so great in the latter year as in 1892. Since 1900, Wisconsin's rank has declined steadily, being third in 1905 and eighth in 1909 (Fig. 24).

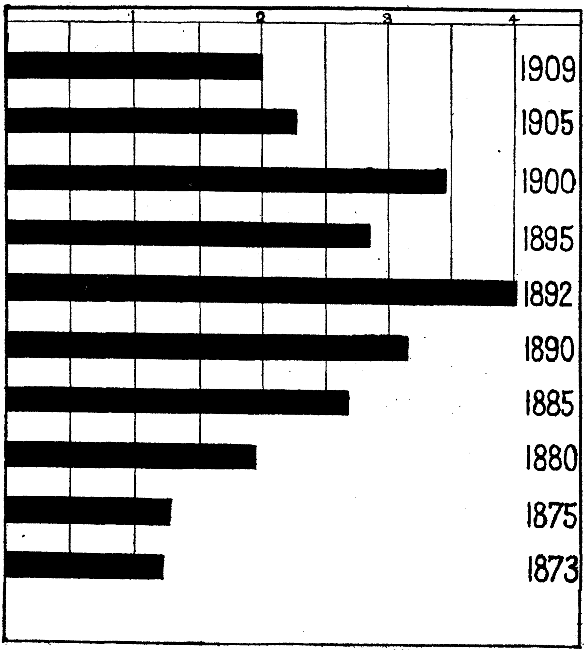

FIG. 23—Lumber Cut in Wisconsin from 1873 to 1907 in Billion Feet (*Wis. Geol. Surv. Bull. No. 1*, p. 38, and Census Reports).

Extensive lumbering was carried on first along the south-flowing rivers. In 1848 the lumber cut on the Wisconsin River amounted to 19½ million feet. The cut rose to 43½ million feet in 1851, to 70 in 1853, and to 149 million feet in 1857. When the railroads came into use in lumbering the cut of the Wisconsin and its tributaries was distributed in various directions, and records are not available for the later history of this area as a unit. The records for the Black and Chippewa Rivers are more complete. The cut of lumber on the Black River in 1848 was 12½ million feet; it reached its highest mark in 1890 with 243.2 million feet, and dropped to 40 million feet in 1900 (Fig. 22). The cut of lumber in the Chippewa valley was 11.35 million feet in 1848, reached a maximum of 428 million in 1883, and was only 176 million in 1900.

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[22] Holly, J. M.: Waterways and Lumber Interests of Western Wisconsin, *Wis. State Hist. Soc. Proc.*, 1906, p. 214.

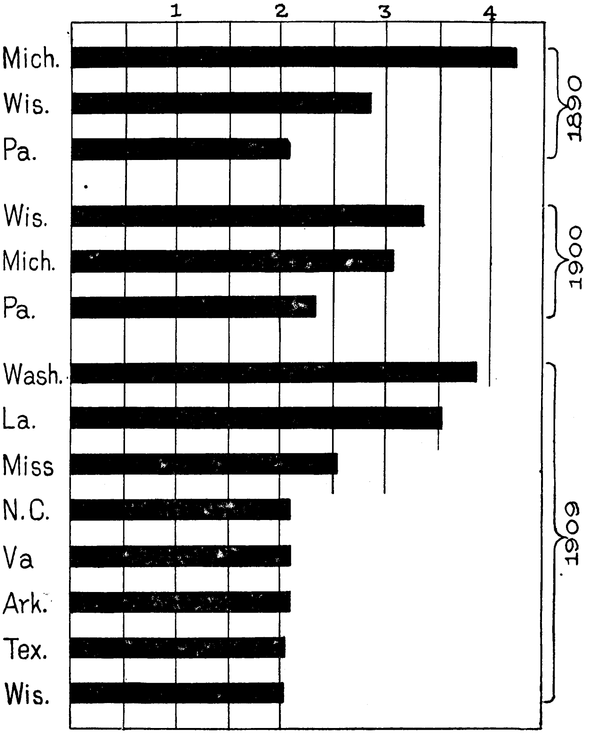

FIG. 24—Production of Lumber by States (in Billions of Board Feet).

The Lake Superior forests were not exhausted so early as those farther south because operations were not begun so soon. The Ashland district reached its maximum of 507 million feet in 1899.[23] The Duluth district, which is only partly in Wisconsin, had its greatest cut of 731 million feet the same year. It is probable that a graph representing the cut in the Lake Superior area would reflect the same history of development and decline as does that for the Black and Chippewa areas. The statistics for such a graph are, however, not at hand.

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[23] Monthly Summary of Commerce and Finance, January, 1901.

The cutting of pine in the Wisconsin forests went on with amazing rapidity, particularly after the railroad enabled the lumbermen to transport logs at any time of the year, and rendered them independent of the stage of water in the rivers. When the industry was at its height in the Lake Superior region there was scarcely a township in the whole forested area that had not been logged over. It is stated that a certain tract of 1,000,000 or more acres belonging to the Wisconsin Central Railway was logged over three times at intervals of a few years. The first man was supposed to have taken all the pine that was of value, and he made a good profit. So did

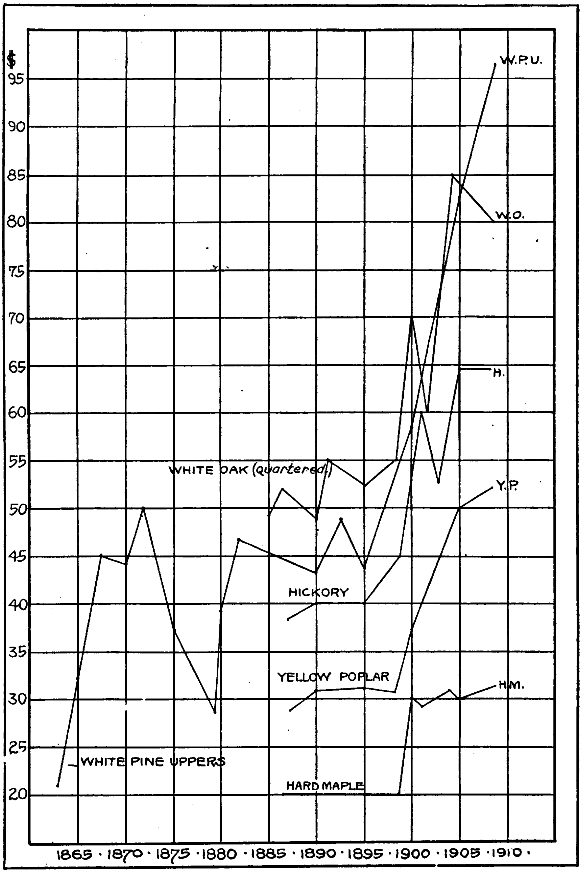

FIG. 25—Comparative Prices of Lumber per Thousand Feet in Buffalo.

the second man, and the third man is said to have cleared just as much money as the first, due to the increased value of the pine.[24] Areas that were logged first for white pine only, were later cut over for Norway pine and perhaps a third time for hemlock.

The amount of lumber, chiefly pine, cut from the forests of Wisconsin was estimated by F. Roth in 1898, for the Geological and Natural History Survey of Wisconsin, to have been 86 billion feet. The amount of standing timber fit for sawing was then 29 billion feet, conifers, and 16 billion feet, hardwoods. Roth also estimated the original stand of pine at 129.4 billion feet, of which 17 billion feet still remained in 1898 and 26 billion had been wasted, chiefly by fire.[25]

The price of lumber has increased with the growing scarcity and the increase in consumption. White pine uppers, which could be bought in Buffalo for $21 a thousand in 1863, were worth $50 in 1873. The price dropped to $28 in 1878, but in 1895 had advanced to $43. Since that date the price has risen steadily, until in 1908 the same grade of pine was worth $97. Quartered white oak, which was worth $52 a thousand in 1887, was worth $80 in 1906. The same year hickory brought $65 a thousand, yellow poplar $53.50 and maple $32.50 (Fig. 25).

The lumber industry has had a tremendous effect on the life and history of Wisconsin. For years it was the dominating industry, representing in 1890 one-sixth of the total taxable property of the state.[26] It encouraged the introduction of secondary industries, invited immigration and the rapid development of the forested area; brought about an early and wasteful exploitation of the timber resources; reduced large areas to an almost desert condition; disturbed the flow of streams; caused the drying out of many swamps; and permitted soil wash in the deforested areas. The state now faces a timber famine. The lumber industry has brought an immense amount of wealth to the state. In 1850 the timber products were worth $1,250,000; in 1880 they reached their highest value of almost $61,000,000; in 1905 they amounted to $44,000,000,[27] and in 1909 to $33,210,079.[28]

The lumber industry caused the establishment of many secondary industries which depend on forest products for their raw materials. This influence is seen in the furniture factories, carriage factories, paper and pulp mills, planing mills, and tanneries located within the state. In 1890 the lumber industry gave employment to 55,000 men,[29] a large percentage of whom were settlers who managed in this way to support themselves until their growing clearings should furnish a sufficient income. The taxes on the timberland built the common roads through the new country. They built, equipped, and partly maintained common schools, which gave the children of these regions educational advantages as good as those enjoyed in many much older districts. Owing to the severe competition between companies a concentration of milling resulted which presently deprived the counties in which the logs were cut of much of the benefit which otherwise would have been theirs, and gave it to the cities at the mouths of the rivers, such as Ashland, Washburn, Bayfield, and Superior.

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[24] Wisconsin in Three Centuries, Vol. II, p. 54.

[25] Roth, F.: Forest Conditions in Northern Wisconsin, *Wis. Geol. Surv. Bull. 1*, p. 16.

[26] *Ibid.*, p. 55.

[27] *U. S. Census Bull. 77.*

[28] Graves, H. S.: Forest Products of United States, 1909.

The effect of the lumbering industry on population is shown in the fluctuation of the population of the great sawmill cities (Fig. 20, in Chap. III, p. 607), which grew with wonderful rapidity until the culmination of the industry in their vicinity, and then in some cases actually decreased. The counties in the lumbering region had their greatest growth during the period of the greatest activity of the lumber business within their limits. Ashland County increased 1,186 per cent. between 1880 and 1890; 2.8 per cent. between 1900 and 1905. Bayfield County increased 1,184 per cent. between 1880 and 1890, 94.4 per cent. between 1890 and 1900, and 10 per cent. between 1900 and 1905. Eau Claire County increased 240.5 per cent. from 1860 to 1870, 85.5 per cent. from 1870 to 1880, and 3.3 per cent. from 1890 to 1900. Dunn County increased 77.3 per cent. from 1870 to 1880, 34 per cent. from 1880 to 1890, and 4.1 per cent. from 1900 to 1905.

The removal of the timber gave an opportunity for agricultural development. More than 1,000,000 acres of forest land had been cleared and put under cultivation in 1898.[30] In 1905 there were about 2,000,000 acres of improved land in the seventeen forested counties of Wisconsin.

The method of conducting lumbering operations resulted in great loss to the state in several ways. (1) While the large modern sawmill utilizes nearly everything for which there is a market, the older mills and the smaller ones of the present day destroy a great amount of valuable material in the slab piles and burners. The modern band saw cuts with half the kerf of the old "muley" saw.

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[29] Roth, F.: Forest Conditions in Northern Wisconsin, *Wis. Geol. Surv. Bull. 1*, p. 40.

[30] *Ibid.*, p. 12.

Had it been applied to all the white pine sawed in Wisconsin from 1872 to 1905 it is estimated that it would have increased the cut nearly 1,000,000,000 feet.[31]

(2) A much greater waste occurs in the logging operations. (a) The stumps formerly were cut high with axes, instead of low with saws. This alone made a difference of several feet of lumber to each full grown tree cut. (b) The logging crew seldom cut the tree to the best advantage. It was a common thing to take two 16-foot logs out of a 40-foot clear trunk and waste the 8 feet at the top, instead of cutting one 16-foot log and two 12-foot logs. (c) Hemlock is useful for lumber and pulp wood and its bark for tanning purposes. Instead of saving the top of a hemlock tree for pulp wood and bark, it is often left in the woods as slash to feed forest fires. Hemlock should also be cut only in the spring when the bark peels readily, otherwise the peeling at the pulp mill results in a loss of 15 to 20 per cent. of wood.[32] (d) Logs and skids are left in the woods to rot, instead of being cut into lumber. (e) Many windfalls and old trees that have started to decay might be utilized but usually they are not. (f) Young growth is cut for making a bedding for sleigh roads, and for car stakes. (g) Young timber is broken in felling large trees and in hauling logs to the roadways. This young growth represents a small loss in merchantable timber but a large loss when it is considered how long it has taken to produce that growth.

(3) The greatest loss to the lumbering industry of the state is the wholesale destruction of the forests by fire. It is estimated that of the once magnificent forests of Wisconsin not over 40 per cent. of the timber reached the sawmills.[33] Only the best and choicest timber was cut in the first logging of any district, and the slash which was left fed the forest fires which destroyed most of the remaining stand. This is particularly the case where the pine stands in fairly solid bodies as it did in Wisconsin. In the older states the pines were scattered through the hardwoods and the slash was distributed in the same way. Open spaces, caused by cutting the pine, were small and filled in rapidly, giving little chance for the surface material to dry out and become liable to burn. If all the slash in northern Wisconsin had been piled and burned as it was made there would still be, in all probability, large pine forests in almost every section. The numerous sawmills and other industries

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[31] Wisconsin in Three Centuries. Vol. IV, p. 53.

[32] Griffith, E. M.: Report of the State Forester of Wisconsin, 1907-1908, p. 49.

[33] *Ibid.*, p. 50.

which depend upon the forests for their raw material would be in operation still, furnishing employment for a large number of people and forming a source of great income to the state.

The Peshtigo fire of October, 1871, which occurred in the region around Green Bay, is the most appalling forest conflagration in the history of the state, because of the loss of life. It is estimated that there were over 1,000 lives lost, 1,000 persons crippled, and 3,000 reduced to beggary.[34] In addition there were great property losses.

There were 1,435 fires between January and November, 1908, which burned over 1,209,432 acres, destroying 499,500,000 feet of merchantable timber worth nearly $3,000,000, besides young growth valued at $6,000,000, and improvements worth $150,000. The cost of fighting these fires amounted to $43,850 to the counties and $55,820 to the timber owners.[35]

Of the 1,435 fires of 1908, 60 per cent. were set by farmers burning brush and stumps and clearing land; about 15 per cent. came from sparks from locomotives, and 25 per cent. from various causes such as the carelessness of hunters, campers, loggers, berry pickers, and Indians, and from lightning. The farmers, as a rule, consider burning the slashings an easy way of clearing their land and do not realize that the fire also destroys the humus and reduces the fertility of the land. Repeated burnings have reduced hundreds of acres of northern Wisconsin land to a condition resembling a desert.[36] In 1909 rains were frequent throughout the summer and the fires burned over only 166,000 acres with a total loss of $104,000. The dry summer of 1910 caused forest fires in many regions. 892,000 acres were burned over with a loss of over $5,000,000.[37] The greatest fire loss was caused by settlers clearing land.[37]

The effects of deforestation are numerous and important. (1) The flow of all the rivers heading in deforested areas has been changed in the past 40 years. (a) Navigation has been abandoned on the Wisconsin. (b) Logging and rafting are much more difficult on all the rivers. (c) The Fox River is failing to furnish the power it once supplied. (d) The same failure has been noticed on many smaller streams. (e) The "June freshet," which formerly was relied upon in log driving operations, has ceased on most of the streams and is uncertain in the rest.[38] (2) Drying out of the ground without artificial drainage is apparent where wagon travel follows the side of the corduroy road which was once necessary because of the swampy condition. Many swamps have dried out and become hay meadows and fields without ditching. The drying occurred in some cases before the swamp timber was cut and in other cases after.[38] (3) The sponge-like covering of the soil produced by the growth and decay of vegetation has been destroyed, partly or entirely, in many places by lumbering operations and fires. The bare ground allows a rapid run-off of the rain and melting snow, which results in floods of the rivers draining these areas. Not only does the surface water run off rapidly, but it takes with it large quantities of soil, as evidenced by the deep ravines characteristic of the Lake Superior drainage slope, and by the muddiness of the rivers during flood.

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[34] Thwaites, R. G.: Wisconsin, p. 558.

[35] Griffith, E. M.: Report of the State Forester of Wisconsin, 1907-1908, p. 63.

[36] *Ibid.*, p. 59.

[37] *Ibid.*, 1909-1910, p. 113.

[38] Roth, F.: Forestry Conditions in Northern Wisconsin, *Wis. Geol. Surv. Bull 1*, p. 41.

Wisconsin is facing a timber famine. How much longer the timber will last can not be determined, due to the uncertainty as to the future rate of cutting and the liability to loss by fire. In 1909 the lumber cut was about 2 billion feet. In 1898, Roth estimated the annual growth to be about 900 million feet, of which only 250 million was merchantable pine. Probably the increase at present is less than it was then because of the great destruction of young growth by fire. The annual increase is balanced in part by the decay of old and over-ripe trees. The denuded lands unfit for agriculture must presently be reforested and scientific foresty practiced or soon Wisconsin must import a large part of the 930 million[39] or more feet of lumber which are consumed annually within the state.

Due to the realizing sense of the necessity of repairing some of the loss which the state has suffered by the destruction of the forests, the legislature of Wisconsin passed an act in 1897 for the appointment of a State Forestry Commission, charged, among other duties, with that of formulating desirable forest legislation for the state. In 1898 Mr. Filbert Roth, under the general direction of Dr. Fernow, Chief of Division of Forestry, made an investigation of forestry conditions in northern Wisconsin which was published by the Wisconsin Geological and Natural History Survey. The report of his investigations embraces a thorough and extended account of the conditions existing at that time and the future possibilities of the region.

The first forestry law, passed in 1903, provided for the setting aside of a forest reserve of some 40,000 acres in Forest, Oneida, and

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[38] Roth, F.: Forestry Conditions in Northern Wisconsin. *Wis. Geol. Surv. Bull. 1*, p. 41.

[39] Griffith, E. M.: Report of the State Forester of Wisconsin, 1909-1910, p. 32.

Vilas Counties. In 1910 the reserves amounted to some 340,000 acres,[40] worth from 2½ to 3 million dollars, located chiefly in those counties which include the headwaters of the Wisconsin, Chippewa, and St. Croix Rivers. The objects of the reserves are (1) to preserve the stream flow by protecting the head waters, (2) to secure a future supply of timber for important industries dependent upon the forests for raw materials, and (3) to prevent soil wash.

In 1907 the state legislature passed a law by which any individual or corporation may plant not over 40 acres of land, worth not more than $10 an acre and not situated within 2 miles of the limits of any incorporated city of villages, with not less than 1,200 trees to the acre and be exempt from taxation on the land so planted for thirty years. Little or no advantage has been taken of this privilege.

The legislature also passed a bill enabling the state to buy up tax title lands from the counties for reserves.[41] Land to the extent of 40 acres owned by individuals or corporations, may be exempt from taxation for a period of 30 years if it be covered by forest timber. This is to encourage the conservative cutting of timber.[42]

A United States Forest Products Laboratory was dedicated at Madison in June, 1910. The building belongs to the University of Wisconsin, which furnishes heat and power to run the machines. The United States Forest Service furnishes the best obtainable machines and apparatus and maintains a corps of sixty workers. The forest experts give a course of lectures to the students of the university on the various American woods. The laboratory staff is divided into sections each under the direction of an expert. These groups make investigations in timber tests, timber physics, distillation, paper tests, chemistry of woods, preservation of woods, and invention of machinery for treating woods.

The State Forester's Report for 1910 recommends that the state make more effective laws for the prevention and stopping of fires; that all the now unproductive land in the northern part of the state be utilized for forests; that the matter of determining whether any land is suitable for timber growing, the plan of management of the land and trees, the time of cutting and the amount of timber cut shall rest with the State Board of Forestry; and that there be a tax on the yield of timber land and a nominal tax or none at all on the land.

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[40] Griffith, E. M.: Report of the State Forester of Wisconsin, 1909–1910, p. 23.

[41] *Ibid.*, 1907-1908. p. 92.

[42] *Ibid.*, p. 93.

(*To be continued.*)